Pioneers of Radiotelegraphy*

In view of the interest in historical matters which has been aroused by the Jubilee of the IRE, this is an appropriate moment to draw attention to the work of Admiral of the Fleet Sir Henry Jackson. The career of this British pioneer provides some useful evidence in the controversy, recently discussed in your pages,[1] as to the identity of the true inventor of radiotelegraphy. Süsskind's paper did include a passing mention of the work of Jackson.

Briefly, Jackson was investigating methods of distinguishing between hostile and friendly torpedo boats. Early in 1895 he realized that the invention of the coherer made it possible for Hertzian waves to be used for this purpose and most of his experiments were carried out in 1895 while he was Captain of the training ship "Defiance." His first conspicuous success was in August, 1895, when he sent Morse signals over the length of his ship; these results were reported to the Admiralty but met with no response and no action was taken to patent his techniques. He continued his experiments and by early 1896 had achieved ranges of several hundred yards, but in this year his service career made it impossible to continue his experiments. However, in the same year he met Marconi and later used his service connections to persuade the Admiralty to install Marconi's apparatus in the ships of the Royal Navy. A short biography of this officer and an assessment of his work appeared in a British journal seven years ago.[2]

Thus we have a third pioneer to be considered, although the claim of Rawles, in the paper quoted above, that Jackson is the true inventor of radiotelegraphy would probably not be generally accepted. In fact, Sir Oliver Lodge disputed the claims of both Marconi and Jackson and at one time the Admiralty contemplated challenging the validity of Marconi's patent on the grounds of prior publication by Lodge (particularly the 1894 lecture). Jackson countered Lodge's claims with a spirited defense of Marconi and the patent case was dropped by the Admiralty.

Thus we can now attribute tentative dates to the earliest successful experiments of the three pioneers with some claim to have invented radiotelegraphy:

Marconi—Spring or early summer of 1895,
Jackson—August, 1895,
Popov—March, 1896.

Rawles suggests December, 1895, as the appropriate date for Marconi's first success. As he was preparing to file his patent specifications in February, 1896, this date seems very late. The experiments of December, 1895, are more likely to be those mentioned by Süsskind in which ranges of up to a mile were achieved. If this surmise is correct, he had then reached results which Jackson did not achieve for another three months or so.

From this evidence I suggest two conclusions are reached:

1) The earliest experiments in which information was transmitted were probably performed by Marconi, though the evidence for this is purely inferential.

   There is much stronger evidence that Jackson achieved success seven months before Popov. Even if Marconi's claim is disallowed, it is still not possible to state that the Popov experiments were the first as the evidence favoring Jackson is at least as strong as that favoring Popov.
2) The lightning recorder built by Popov in May, 1895, is not an adequate demonstration of Popov's priority. The essential features of the coherer-relay-bell receiver had been demonstrated by Lodge in 1894, but the legal experts at the Admiralty did not consider that this upset Marconi's patent claims.

Popov's apparatus does not show sufficient advance to suggest that his claims were any better than those of Lodge.

These conclusions, while not establishing any positive case in favor of Marconi, appear seriously to weaken that of Popov and thereby reinforce the opinions already expressed in Süsskind's paper.

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Author's Comment[3]

My speculation that Jackson "was perhaps experimenting with radio signals before Popov *or* Marconi" appears to be corroborated by Pocock's remarks; in this connection, it is interesting that Marconi himself paid tribute to this remarkable officer in a lecture before the Royal Institution on

* Received November 21, 1962.

[1] C. Süsskind, "Popov and the beginnings of radiotelegraphy," PROC. IRE, vol. 50, pp. 2036–2047; October, 1962.

[2] A. T. Rawles, "Jackson of the 'Defiance'," *J. IEE*, vol. 1, pp. 743–745; December, 1955.

[3] Received December 3, 1962.

February 2, 1899, when he spoke of "my friend, Captain Jackson, R.N., who had done very good work on the subject of wireless telegraphy before I had the pleasure of meeting him."[4] The paper by Rawles cited above[2] unfortunately does not vitiate my original statement regarding Jackson's experiments that "few details of these trials are generally available"; the paper lacks all technical details and references. I am told that some of the reports of the Naval Torpedo School of the period are at the Science Museum in South Kensington in London, one of which contains Jackson's statement that "the principles on which Marconi's apparatus were constructed were similar to those employed on H.M.S. Defiance but more fully developed and the instruments themselves were much more sensitive."[5] A fully documented account of Jackson's work would certainly represent a useful contribution to the history of electronics; perhaps Pocock or one of his colleagues will be persuaded to make such a study.

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[4] G. Marconi, "Wireless telegraphy," *Proc. Roy. Institution*, vol. 16, pp. 247–256; February, 1899.
[5] G. R. M. Garratt, private communication.